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26 November 1984

MEMORANDUM FOR: Deputy Director for Intelligence
Associate Deputy Director for Intelligence

STAT FROM: [redacted]
Chief, Analytic Support Group

SUBJECT: Japanese Competition in Supercomputers

1. Over the past year, OGI/CTID published some important work on the nature of Japan's challenges to the US computer industry. Among other areas, OGI's analysis emphasized the threat in supercomputers—a technology that is critical to areas such as nuclear weapons design, oil reservoir simulation, and aircraft design.

2. The attached articles from Computerworld, a leading trade publication, present a candid view of how thin our lead in this technology is. The CRAY executive's candor before security analysts—an audience before whom he might have been expected to be more upbeat—is particularly striking.

3. CRAY has been heavily marketing the Agency. Earlier this year, Mr. Rollwagen spoke to the DDS&T, the ADDS&T, the ADDI, and assorted backbenchers. On November 16, a senior official from CRAY briefed the Executive Director and members of the Information Systems Board. Funds to purchase two CRAYs for Agency use are included in the FY87 segment of ORD's
STAT "4-D" initiative for FY86. [redacted]

Attachment
as stated

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STAT DDI/ASG [redacted] (26Nov84)

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STC third-quarter report details losses

LOUISVILLE, Colo. — Storage Technology Corp. (STC) posted a third-quarter loss of $64.7 million, according to its recently released financial report. The company's anticipation of that loss had earlier led it to file for protection under Chapter 11 of the Federal Bankruptcy Act.

The loss for the quarter, equal to $1.87 per fully diluted share, compared to a year-earlier loss of $6.9 million, or 20 cents per fully diluted share. For the first nine months of the current fiscal year, STC posted a loss of $86.2 million, or $2.49 per share; that figure included a tax benefit of $24.3 million. The company had reported a quarterly loss of $5.4 million, or 5 cents per share, in the comparable period in 1983.

STC actually posted a revenue gain for the third quarter, $282.2 million, compared to year-earlier revenues of $201.4 million; however, costs and expenses soared to $282.2 million, compared to $212.5 million in the third quarter last year. For the first nine months, revenues declined to $656.6 million, compared to $659.6 million last year, and expenses increased to $767.2 million from $664.6 million the previous year.

The third-quarter loss was compounded by federal tax adjustments for the years 1977 and 1978, the company said. Despite a pretax loss of $52.5 million, the company paid income taxes of $12.4 million.

Lower than expected shipments

STC attributed the financial problems to lower than anticipated shipments, higher costs for new products, lower margins due to price cutting and increased depreciation expenses on rental equipment.

Additionally, the company said that it had placed its Dublin subsidiary, Storage Technology Products B.V., into receivership. That subsidiary, employing 363 people and engaged in manufacturing products for the European market, was acquired in 1980 as part of the acquisition of Documation, Inc. STC said its facilities in the U.S. and Puerto Rico would supply the market formerly served by the Irish subsidiary.

Prior to the release of the financial report, STC Chairman Jesse I. Aweida met with company creditors and U.S. trustee Dolores Kopel. Aweida pledged the company's full cooperation and desire "to emerge from Chapter 11 as rapidly as possible with a reorganization plan acceptable to

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- Pansophic Systems, Inc. took aim at gaining a foothold in the high-end IBM mainframe software market with the recent acquisition of the developer of an online application generator/**78**
- Control Data Corp. announced its intention to sell off a financial subsidiary and focus more on the computer industry/**80**
- Lee Data Corp. will acquire Visual Technology, Inc., manufacturer of the Commuter portable computer, in a $16.8 million deal/**80**

INDUSTRY INSIGHT
David Olmos
CW Staff

Trade secret suits devastate firms

While not all trade secret lawsuits make splashy headlines like last year's IBM-Hitachi Ltd. case, such legal battles are being waged throughout the computer industry at terrific cost to the combatants. In some instances, the very survival of a company may be at stake.

Eagle Computer, Inc. and Franklin Computer Corp. are two recent cases in point. Eagle, a maker of IBM-compatible microcomputers, has been struggling to stay afloat ever since IBM slapped it with a patent infringement suit early this year. And Franklin, burdened by a $2.5 million settlement of a copyright infringement suit brought by Apple Computer, Inc., was forced into a Chapter 11 bankruptcy reor-

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Xerox computer chief targets top of factory automation heap

By Kathleen Burton
CW West Coast Bureau

LOS ANGELES — Xerox Computer Services (XCS) President William Fello believes his profitable $100-million division of the Xerox Corp. will garner the lion's share of the lucrative factory automation software market by 1987.

Fello, who took over as XCS' president in April after serving as marketing vice-president, plans rapid growth for the division. Over the next two years, he will integrate Xerox office products with Xerox business systems products and increasingly target vertical markets. "By 1987, vertical software will be more profitable than our services, accounting for half our sales," he said.

XCS' first commercial product, a turnkey manufacturing system called the Xerox Business Management System (XBMS), was introduced last March. It is available on the IBM 4331, the IBM 308 mainframe and the IBM Personal Computer XT. The system's 23 business and manufacturing programs include decision support, computer-aided design/computer-aided manufacturing, engineering, manufacturing control, factory automation tools and a microcomputer-to-mainframe link.

The potential customer base for computer-based manufacturing tools is enormous, according to Fello. Only 5% of the nation's 45,000 small factories producing less than $10 million worth of goods annually have automated their businesses so far. "Most manufacturing plants in the U.S. are still untouched by computers, so computer-based manufacturing is still wide-open territory," he said.

Fello predicted that IBM would not challenge XCS' two-year lead in factory automation software. "IBM's a tough competitor," he said, "but both companies can coexist in this niche." According to Fello,

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In face of redoubled market competition, Cray boss optimistic

By Charles Babcock
CW New York Bureau

NEW YORK — Cray Research, Inc. Chairman John A. Rollwagen recently declared that his company will maintain its lead in supercomputers despite competition from the Japanese or possibly even IBM.

Two Japanese companies, Fujitsu Ltd. and Hitachi Ltd., have introduced their own supercomputers, but "there's nothing happening there that's going to knock us off the track," Rollwagen told the New York Society of Security Analysts recently.

"Cray has the lead at the moment, but it's a thin one. It can't afford to fail on one of its next-generation machines," said James C. Browne, professor of computer science at the University of Texas at Austin and chairman of a panel advising the U.S. Office of Science and Technology Policy on supercomputers.

Cray has the lead in producing multiprocessor supercomputers; the Japanese models are still single processor units, said Jack Worlton, a fellow at the Los Alamos National Laboratory, Los Alamos, N.M., who has evaluated tests of the Cray and the Japanese computers. He said the contest is a three-way race between competing technologies — emitter-coupled logic (ECL), gallium arsenide and Cmos semiconductor chips — and which one will win is not clear.

While IBM has not indicated that it will enter the race, Rollwagen's comments reflected concern that it will. About half of Cray's units go into IBM sites, and users transfer some of their engineering and research applications to the Cray machine. This delays the customer's need to upgrade his IBM mainframe, Rollwagen noted.

To stop this "leakage" of mainframe sales, IBM might be tempted to enhance its still-unannounced Sierra line or even offer its own supercomputer, Rollwagen said. "Cray is a tiny company, and I'd never say we can handle IBM. But if they come over to our turf, we'd give them a hell of a fight," he said.

Browne said the Hitachi and Fujitsu supercomputers are IBM-compatible, which puts pressure on IBM to enter the field. IBM cannot wait five or six years to develop its own entry if it finds Japanese units going into its customer sites, he added.

When the Cray-2 becomes available, the Minneapolis manufacturer will have the Japanese bracketed with high-performance, low-cost machines, Rollwagen added.

Half of Cray's components are supplied by Fujitsu; Rollwagen said his company assumes that any information they provide to Fujitsu's semiconductor division ends up in the hands of Fujitsu's computer division.

"Fujitsu tells us no, that is not so, that we are a valued customer," he told the security analysts. He said Cray officials have seen components in the Fujitsu VP 200 that they cannot buy from Fujitsu.

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Cray Research sales up despite increased competition

By Charles Babcock
CW New York Bureau

NEW YORK — Cray Research, Inc.'s sales are increasing at a time when it faces growing supercomputer competition at home and abroad.

Cray Chairman John A. Rollwagen told the New York Society of Security Analysts recently that the Minneapolis-based supercomputer maker expects to install 21 multimillion-dollar systems in 1984. Last year it installed 16; next year it expects to install 30, Rollwagen said.

"If someone orders today, we have to say, 'Sorry, but we can't deliver until the first quarter of 1986, 15 months from now,' " he said.

Expects orders to grow

Still, the pace of orders is expected to grow, Rollwagen said. Forty-five prospects have submitted a written or verbal order for a Cray machine, and 24 of those ordering are new customers. New customers make up almost three-fourths of the prospects that are currently querying Cray, he added.

When asked if Cray, which is used to selling a handful of $6.5 million to $20 million machines a year, could ramp up production, Rollwagen answered by noting that in the past, Cray customers have been reluctant to say they would be willing to buy a new model three years down the road, so Cray forecasters would say demand was likely to decline in three years.

Now, Cray "is taking the courageous step" of predicting that demand will remain steady, rather than decline, and it is increasing production accordingly, he said.

While the bulk of Cray's customers continue to be government and university laboratories, Rollwagen said a growing share are commercial companies, such as the Ford Motor Co., which uses a Cray machine to simulate auto crashes.

Demand strongest for multiprocessor units

Rollwagen indicated that the demand is strongest for its X-MP/2 or X-MP/4 dual and quadruple processor units. "We misjudged to some extent the demand for the top of the line," he said.

He noted that the appetite for supercomputing power is driven by the desire to simulate physical phenomena, such as aircraft flying or atmospheric conditions.

John F. Carlson, Cray's chief financial officer, reported that the company garnered a revenue of $71.6 million and net earnings of $19.6 million, or $1.32 per share, in the third quarter ended Sept. 30. Revenue in the third quarter last year was $31.4 million, with a net income of $2.8 million, or 19 cents per share.

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They worry that they will not get the most advanced components until two years after they have appeared in Japanese computers. Cray has developed its own gallium arsenide manufacturing capability to avoid becoming dependent on its competitors, according to Rollwagen; its first attempts have not yielded wafers with working chips.

Japanese may have edge

Browne said taking the step to gallium arsenide components was risky, adding that the Japanese may have an edge in designing gallium arsenide chips.

A start-up company, ETA Systems, Inc. of St. Paul, Minn., an offshoot of Control Data Corp. of Minneapolis, is designing a supercomputer with Cmos chips that are slower than ELC or gallium arsenide but contain a very high density of components per chip. The chip is being designed to execute 10 billion floating-point operations per second and is scheduled to be available in the second half of 1986, ETA spokesmen said.

Rollwagen claimed Cray had a two-year lead on Hitachi and Fujitsu because the Japanese firms were still field-testing their new models and needed more time to develop them. Spokesmen for Fujitsu and Hitachi America Ltd. disputed the claim, saying they were past field-testing and were installing units at locations in Japan.

Amdahl Corp. of Sunnyvale, Calif., which markets Fujitsu supercomputers in the U.S. as the Amdahl 1100 and 1200, said they will be available in the second quarter of 1985. Hitachi has not decided yet whether it will market its S-810 and S-820 supercomputers in the U.S., Hitachi spokesmen said.